

~~SECRET~~  
7 March 1955  
**CONFIDENTIAL**

*File: Bureau  
Packaging  
1955*

MEMORANDUM FOR: O.R.D.T.B./Materials

SUBJECT: Emergency Waterproof Packaging

The following is a list of desirable characteristics for a "self-sealing rubber" type of Emergency Waterproof Packaging.

1. Physical Characteristics.

① 1.1 Must be capable of being easily sealed by hand with no other tools.

1.2 Will be used to cover heavy, irregular shaped articles. Should be capable of covering such articles and stretching without parting with or/without backing.

1.3 Must not be easily punctured or abraded so as to expose contents.

1.4 Rubber material plus backing must have minimum moisture vapor transmission.

1.5 Must have a backing on sheet that is not sticky after a sheet is unrolled but adheres to the rubber firmly. This should be capable of being removed from the rubber by hand if necessary.

1.6 The sheet and backing should be capable of being cut by ordinary scissors or pocket knife.

1.7 Thickness of the rubber sheet should be between 1.5 and 3.0 mm.

2. Surveillance Characteristics.

2.1 Roll of rubber sheet should be capable of storage on shelf for at least one year. At the end of that time, it should exhibit the properties of Section I above.

2.2 Packaged items should remain waterproof and if possible, moisture vaporproof for one year of storage in contact with the ground. The backing must also be capable of underground storage.

008632

DDO	28	REV DATE	27 JUN 58	BY	057447
CRIG COMP	056	OPI	56	TYPE	02
CRIG PLAS	8	PAOS	8	REV CLAS	C
JUT	32	NEXT REV	2010	AUTH	NR 10-2



*on 7 March.*

25X1

**CONFIDENTIAL**

~~SECRET~~

CONFIDENTIAL

3. Sterility.

3.1 No Government or Manufacturers markings should appear on the sheet or its packaging.

4. Packaging.

4.1 The rubber sheet should be made up into rolls of not more than 25 pounds.

4.2 Rubber sheets should be approximately 24" wide.

4.3 Each roll should be suitably wrapped or packed for warehouse storage.

At the completion of the task, specifications and drawings and 50 yards of material are desired.

- 2 -

~~SECRET~~

CONFIDENTIAL

CONFIDENTIAL

## ROCK ISLAND ARSENAL LABORATORY REPORT mlh

DATE 1-11-55

Of  
CHEMICAL ANALYSIS

LAB. NO. 54-ES-575A

OF  
UNVULCANIZED RUBBER SAMPLE

SPEC. NO.

M. NO.

EX. O.

Chief of Ordnance  
Dept of the Army  
Washington 25, D. C.

DRG. NO.

Test PerformedResultsInfra-red analysis to determine  
type polymer or polymers

Natural rubber

Free Carbon

26%

Particle Size of Carbon Black

Average 323A  
(EPC = 300-333A)

Inorganic Material

4.27%

Zinc Oxide

3.06% of Inorganic

Other Materials

1.23%

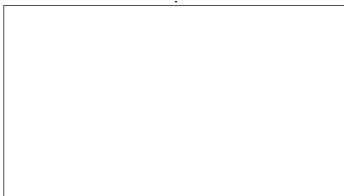
Odor of samples as received

Characteristic of  
natural rubber

Nature of Backing Sheet

Vinyl plastic with  
yellow dye

25X1

  
Laboratory Director

CONFIDENTIAL

**CONFIDENTIAL****ROCK ISLAND ARSENAL LABORATORY REPORT mlh**

DATE 1-11-55

LAB. NO 54-ES-575B

SPEC. NO.

M. NO.

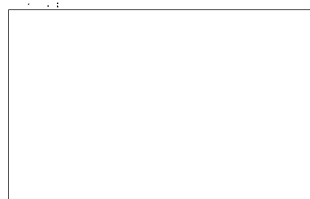
EX. O.

DRG. NO.

Of  
**PHYSICAL PROPERTIES  
 OF  
 VULCANIZED SAMPLE**

Chief of Ordnance  
 Dept of the Army  
 Washington 25, D. C.

<u>Test Performed</u>	<u>Results</u>
Tensile, psi.	3455
Modulus, psi. @ 300% E.	935
Elongation, Ultimate %	625
Hardness, Shore A	50
Strain, NBS, @ 400 psi., %	170
Compression Set, 22 hrs. @ 158°F: Method B, %	24
<b>Low Temperature:</b>	
ASTM-D746, Solenoid, 2-1/2 min. @ -65°F	Failed (Borderline)
ASTM-D1043, T200, °F	-65
<b>Air Oven Aged, 70 hrs. @ 212°F:</b>	
Strain, NBS, @ 400 psi, %	Specimen broke
Hardness, Shore A	40
<b>ASTM #3 Oil, 70 hrs. @ 212°F:</b>	
Hardness, Shore A	0
% Volume Swell	Over 400%



Laboratory Director

25X1

**CONFIDENTIAL**

TBElevins/vaw/77581

CONFIDENTIAL

ORDTB-Materials

6 December 1954

SUBJECT: Sample of Uncured Rubber Sheet

TO: Commanding General  
Rock Island Arsenal  
Rock Island, Illinois

ATTENTION: ORDBC-86

1. The inclosed sample of uncured rubber sheet was obtained from Dunlop Rubber Company in Germany.
2. It is requested that it be analyzed for composition and this office advised of domestic sources for equivalent material.
3. The intended use is for emergency waterproof packaging of small items of material.
4. Work as required should be charged to Project TB4-521.

BY COMMAND OF MAJOR GENERAL CUMMINGS:

1 Incl  
1. Sample

Assistant

25X1

CONFIDENTIAL

~~CONFIDENTIAL~~

DO NOT RECORD

ORDBC  
ORDTB

1st Ind+

ZT0ssefort/mlh/638

Ord Corps, Rock Island Arsenal, Rock Island, Ill., 11 Jan. 1955

TO: Chief of Ordnance, Dept of the Army, Washington 25, D. C.  
ATTN: ORDTB - Materials

1. Forwarded herewith is Rock Island Arsenal Laboratory Report 54-ES-575A, covering results of chemical analysis on subject sample of uncured rubber sheet. A portion of the sample was cured into a test pad and physical properties of the vulcanizate determined. These results are given in Rock Island Arsenal Laboratory Report 54-ES-575B.

2. Based on these chemical and physical tests, an approximate reconstruction of the formula of this rubber would be as follows:

Natural rubber (smoked sheets)	100
Carbon Black (EPC)	50
Zinc Oxide	5
Stearic Acid	1
Antioxidant	1
Sulfur	2
Accelerator	<u>1</u>
	160

3. It is considered that rubber of this nature and having these properties could be obtained from any reputable manufacturer of rubber products.

FOR THE COMMANDING OFFICER:

JAN 11 1955

2 Incls

1. Lab Rpt 54-ES-575A  
(in dup)2. Lab Rpt 54-ES-575B  
(in dup)

Assistant

25X1

CONFIDENTIAL

**Page Denied**

CONFIDENTIAL

Information obtained by  EE/TEC, on Self-Sealing

25X1

Rubber. Source of Supply: German Mission/LOG, Availability: Two weeks  
to two months. Cost: DM 3.40 <sup>804</sup> per roll, approximately  
Manufacturer: Dunlop Gummi Compagnie, Hanau/Main

Types:

<u>length</u>	<u>width</u>	<u>weight</u>	<u>thickness</u>
6M.	480mm	5 kilo	1.5mm
6m.	480mm	10 kilo	3 mm
6 m	480mm	10 kilo	1.5mm

File: Burial Packaging, ~~1954~~  
:mm <sup>1955</sup>

CONFIDENTIAL